

and seemed to fall from the zenith. At Baltimore, Md., meteors were observed all night. At Washington, D. C., the display began shortly after sunset, and the meteors increased in number until after 11 p. m. From that time they decreased in number and were fainter, but were observed until daylight of the 24th. A large number of meteors were noted at Lynchburg, Va.; from 11 to 11.50 p. m. nearly 200 were counted; they seemed to start from the zenith, and a number had streamers. At Parkersburg, W. Va., meteors were observed from 8.30 p. m. till after midnight. At Pensacola, Fla., they were noted from 8 to 9 p. m., and were more numerous north of the zenith. A meteoric shower was observed at Auburn, Ala., the early part of the night. The display was at its height about 9 p. m., when 50 meteors were counted in 3 minutes. The meteors were mostly faint, and were more radiant near the zenith.

At Mobile, Ala., meteors, averaging about 2 per minute, were observed in the south and east quadrants from 10.30 to 11

p. m. At Vicksburg, Miss., the shower continued until 3 a. m. At Louisville, Ky., meteors were visible all night, the height of the display being about midnight. At Chicago, Ill., meteors were observed in the east quadrant from altitude 45° to the zenith, apparently moving towards the eastern horizon. At Rapid City, S. Dak., the display continued in the northeast from 11 p. m. until midnight. At Tucson, Ariz., meteors appeared north of the zenith at 9 p. m., moving northeast. At Monero, N. Mex., the display was noted in the zenith and in the northeast and east from 7.30 to 9 p. m. At Portland, Oregon, meteors were particularly numerous and brilliant at 9 p. m. At Roseburg, Oregon, 240 meteors were counted between the zenith and the eastern horizon.

#### DROUGHT.

In Ohio drought continued throughout the month, and water in springs, wells, and streams was low. Drought prevailed in Arizona; stock suffered on account of a scarcity of water, and mining interests were affected.

### STATE WEATHER SERVICES.

[Temperature in degrees Fahrenheit; precipitation, including melted snow, in inches and hundredths.]

The following extracts and summaries are republished from reports for November, 1892, of the directors of the various state weather services:

#### ALABAMA.

*Temperature.*—Maximum, 89, at Healing Springs, 1st; minimum, 20, at Valley Head, 24th and 25th; greatest monthly range, 66, at Healing Springs; least monthly range, 44, at Mobile.

*Precipitation.*—Greatest monthly, 8.65, at Valley Head; least monthly, 0.17, at Bermuda.—*P. H. Mell, Observer, Weather Bureau, Auburn, director.*

#### ARIZONA.

*Temperature.*—Maximum, 90, at Fort Mohave, 11th; minimum, 12, at Winslow, 25th; greatest monthly range, 63, at Rancho del Pueblo; least monthly range, 32, at Dos Cabezos.

*Precipitation.*—Greatest monthly, 1.87, at Chiricahua Mountains; least monthly, 0.00, at a number of stations.

*Wind.*—Prevailing direction, southwest.—*J. C. Hayden, Observer, Weather Bureau, Tucson, director.*

#### ARKANSAS.

*Temperature.*—The mean was 0.7 below the normal; maximum, 79, at Eldorado, 27th; minimum, 20, at Rogers, 7th; greatest monthly range, 54, at Hot Springs; least monthly range, 40, at Malvern.

*Precipitation.*—The average was 1.34 above the normal; greatest monthly, 11.74, at Searcy; least monthly, 1.78, at Winslow.

*Wind.*—Prevailing direction, north.—*M. F. Locke, Commissioner of Agriculture, Little Rock, director; F. H. Clarke, Local Forecast Official, Weather Bureau, assistant.*

#### CALIFORNIA.

*Temperature.*—Maximum, 95, at Rialto, 22d; minimum, 16, at Tehachapi, 25th; greatest monthly range, 64, at San Jacinto; least monthly range, 33, at Oakland.

*Precipitation.*—Greatest monthly, 23.09, at Edmonton; least monthly, 0.11, at Tehachapi.

*Wind.*—Prevailing direction, west.—*J. A. Barwick, Observer, Weather Bureau, Sacramento, director.*

#### COLORADO.

*Temperature.*—The mean was slightly above the normal on the eastern side of the mountains, and slightly below on the western slope; maximum, 83, at Orchard, 30th; minimum (—20, at Pikes Peak, 17th), —14, at Meeker, 16th; greatest monthly range, 74, at Minneapolis; least monthly range, 40, at Glen Eyrie.

*Precipitation.*—The average was slightly below the normal; greatest monthly (5.10, at Pikes Peak), 3.00, at Climax; least monthly, 0.00, at several stations.

*Wind.*—Prevailing direction, west.—*J. J. Gilligan, Observer, Weather Bureau, Denver, director.*

#### FLORIDA.

*Temperature.*—Maximum, 90, at Clermont, 9th; minimum, 31, at Fort Meade, 16th and 20th; greatest monthly range, 56, at Orange City; least monthly range, 24, at Key West.

*Precipitation.*—Greatest monthly, 2.94, at Pensacola; least monthly, trace, at Fort Meade.

*Wind.*—Prevailing direction, northwest.—*E. R. Demain, Observer, Weather Bureau, Jacksonville, director.*

#### GEORGIA.

*Temperature.*—Maximum, 88, at Cordele, 4th, and at Eastman, 3d and

4th; minimum, 15, at Diamond, 24th; greatest monthly range, 68, at Diamond; least monthly range, 28, at Macon.

*Precipitation.*—Greatest monthly, 9.37, at Lafayette; least monthly, 1.04, at Quitman.

*Wind.*—Prevailing direction, northwest.—*Park Morrill, Local Forecast Official, Weather Bureau, Atlanta, director.*

#### IDAHO.

*Temperature.*—Maximum, 72, at Boise Barracks, 4th; minimum, —17, at Lake, 9th; greatest monthly range, 67, at Lake; least monthly range, 28, at Ruthburg.

*Precipitation.*—Greatest monthly, 6.03, at Kootenai; least monthly, 0.08, at American Falls.—*J. H. Smith, Observer, Weather Bureau, Idaho Falls, director.*

#### ILLINOIS.

*Temperature.*—The mean was 3.5 below the normal; maximum, 76, at Jordans Grove, 13th; minimum, 4, at Aurora, Galva, and Oregon, 24th.

*Precipitation.*—The average was 0.06 below the normal; greatest monthly, 7.25, at Pana; least monthly, 0.55, at Oregon.

*Wind.*—Prevailing direction, northwest.—*John Craig, Observer, Weather Bureau, Springfield, director.*

#### INDIANA.

*Temperature.*—The mean was 3.1 below the normal; maximum, 67, at Jeffersonville, 1st; minimum, 7, at Lafayette, 24th; greatest monthly range, 53, at Rockville; least monthly range, 37, at Hawpatch.

*Precipitation.*—The average was 0.17 below the normal; greatest monthly, 4.90, at Indianapolis; least monthly, 2.50, at Irvington.

*Wind.*—Prevailing direction, northwest.—*Prof. H. A. Huston, Lafayette, director; C. F. R. Wappenhans, Local Forecast Official, Weather Bureau, assistant.*

#### IOWA WEATHER AND CROP SERVICE.

*Temperature.*—The mean was 3.0 below the normal; maximum, 70, at Glenwood, 12th; minimum, —3, at Charles City, 23d; greatest monthly range, 65, at Larrabee; least monthly range, 24, at Emmetsburg.

*Precipitation.*—The average was slightly below the normal; greatest monthly, 3.16, at Keokuk; least monthly, 0.05, at Sydney.

*Wind.*—Prevailing direction, northwest.—*J. R. Sage, Des Moines, director; G. M. Chappel, Local Forecast Official, Weather Bureau, assistant.*

#### KANSAS.

*Temperature.*—The mean was 0.1 below the normal; maximum, 79, at Shields, 5th, at Ulysses, 13th, and at Eldorado, 14th; minimum, 8, at Eureka Ranch, 21st, and at Shields, 3d; greatest monthly range, 71, at Shields; least monthly range, 43, at Sedan.

*Precipitation.*—The average was 0.03 below the normal; greatest monthly, 1.91, at Kansas City; least monthly, 0.00, at Burr Oak, McPherson, and Ulysses.

*Wind.*—Prevailing direction, northwest.—*Prof. J. T. Lovewell, Topeka, director; T. B. Jennings, Observer, Weather Bureau, assistant.*

#### KENTUCKY.

*Temperature.*—The mean was 6.0 below the normal; maximum, 78, at Springfield, 13th; minimum, 9, at Harrodsburg, 24th; greatest monthly range, 67, at Springfield; least monthly range, 37, at Paducah.

**Precipitation.**—The average was 0.25 below the normal; greatest monthly, 6.11, at Williamsburg; least monthly, 0.27, at Carrollton.

**Wind.**—Prevailing direction, north.—*Frank Burke, Observer, Weather Bureau, Louisville, director.*

#### LOUISIANA.

**Temperature.**—The mean was 4.0 above the normal; maximum, 88, at Abbeville, 28th, at Cameron, 1st, and at Houma, 8th; minimum, 26, at Natchitoches, 11th; greatest monthly range, 60, at Cameron; least monthly range, 42, at New Orleans.

**Precipitation.**—The average was about 0.75 below the normal; greatest monthly, 7.46, at Cameron; least monthly, 2.03, at Paincourtville.

**Wind.**—Prevailing direction, southeast.—*R. E. Kerkam, Local Forecast Official, Weather Bureau, New Orleans, director.*

#### MARYLAND.

**Temperature.**—Maximum, 77, at Edgemont, 4th; minimum, 15, at Edgemont, 24th; greatest monthly range, 62, at Edgemont; least monthly range, 34, at Denton.

**Precipitation.**—Greatest monthly, 6.60, at Seaford, Del.; least monthly, 3.10, at Easton.

**Wind.**—Prevailing direction, northwest.—*Dr. William B. Clark, Johns Hopkins University, Baltimore, director; Prof. Milton Whitney, Maryland Agricultural College, secretary and treasurer; C. P. Cronk, Observer, Weather Bureau, in charge.*

#### MICHIGAN.

**Temperature.**—The mean was 2.7 below the normal; maximum, 64, at Lansing, 16th, and at Port Huron, 17th; minimum, 2, at Crystal Falls, 23d; greatest monthly range, 51, at Evart; least monthly range, 34, at Charlevoix and Bear Lake.

**Precipitation.**—The average was 0.14 above the normal; greatest monthly, 5.98, at Adrian; least monthly, 0.60, at Charlevoix.

**Wind.**—Prevailing direction, northwest.—*E. A. Evans, Local Forecast Official, Weather Bureau, Detroit, director.*

#### MINNESOTA.

**Temperature.**—Maximum, 66, at Ash Creek, 13th; minimum, —25, at Pokegama Falls, 23d; greatest monthly range, 75, at Ash Creek; least monthly range, 46, at Rochester.

**Precipitation.**—Greatest monthly, 1.69, at Duluth; least monthly, 0.09, at Collegeville.

**Wind.**—Prevailing direction, southeast.—*J. H. Harmon, Observer, Weather Bureau, Minneapolis, director.*

#### MISSISSIPPI.

**Temperature.**—The mean was 0.8 below the normal; maximum, 88, at Vaiden, 2d; minimum, 20, at Aberdeen, 24th; greatest monthly range, 65, at Vaiden; least monthly range, 39, at Ship Island.

**Precipitation.**—The average was 0.80 below the normal; greatest monthly, 7.87, at Hernando; least monthly, 0.40, at Kosciusko.

**Wind.**—Prevailing direction, south.—*R. B. Fulton, Observer, Weather Bureau, University, director.*

#### MISSOURI.

**Temperature.**—The mean was 1.4 below the normal; maximum, 79, at Saint Charles, 11th; minimum, 9, at Langdon, 21st; greatest monthly range, 61, at Langdon; least monthly range, 40, at Lamar.

**Precipitation.**—The average was 0.04 below the normal; greatest monthly, 6.21, at Gayoso; least monthly, 0.18, at Langdon.

**Wind.**—Prevailing direction, southwest.—*Levi Chubbuck, Secretary of State Board of Agriculture, Columbia, director; H. A. McNally, Observer, Weather Bureau, assistant.*

#### NEBRASKA.

**Temperature.**—Maximum, 85, at Mullen, 5th; minimum, —2, at Valentine, 26th, and at Kennedy, 25th; greatest monthly range, 78, at Valentine; least monthly range, 46, at Falls City.

**Precipitation.**—Greatest monthly, 1.50, at Tekamah; least monthly, 0.00, at Dunning, Fort Sidney, and Madrid.

**Wind.**—Prevailing direction, northwest.—*Prof. Goodwin D. Swezey, Crete, director; G. A. Loveland, Observer, Weather Bureau, assistant.*

#### NEVADA.

**Temperature.**—The mean was 1.8 below the normal; maximum, 76, at Downeyville, 9th; minimum, —13, at Stofiel, 17th.

**Precipitation.**—The average was 1.18 above the normal; greatest monthly, 9.62, at Lewers Ranch; least monthly, 0.01, at Downeyville.

**Wind.**—Prevailing direction, south.—*Prof. Charles W. Friend, Carson City, director; F. A. Carpenter, Observer, Weather Bureau, assistant.*

#### NEW ENGLAND.

**Temperature.**—The mean was 0.1 below the normal; maximum, 76, at Lynn (b), 8th; minimum, 6, at Chelsea, 23d; greatest monthly range, 57, at Lancaster; least monthly range, 36, at Nantucket.

**Precipitation.**—The average was 1.21 above the normal; greatest monthly, 8.86, at Norwalk; least monthly, 1.34, at Clinton.

**Wind.**—Prevailing direction, northwest.—*J. Warren Smith, Observer, Weather Bureau, Boston, director.*

#### NEW JERSEY.

**Temperature.**—The mean was 0.2 below the normal; maximum, 76, at Asbury Park, 8th; minimum, 13, at Blairstown, 28th, and at Toms River, 24th and 27th; greatest monthly range, 57, at Toms River; least monthly range, 39, at Oceanic.

**Precipitation.**—The average was 3.56 above the normal; greatest monthly, 9.49, at Lancewood; least monthly, 4.74, at Blairstown.

**Wind.**—Prevailing direction, northwest.—*E. W. McGann, Observer, Weather Bureau, New Brunswick, director.*

#### NEW MEXICO.

**Temperature.**—Maximum, 86, at Deming, 15th; minimum, 0, at Chama, 17th; greatest monthly range, 68, at Chama; least monthly range, 37, at La Luz.

**Precipitation.**—Greatest monthly, 1.80, at Deming; least monthly, 0.00, at several stations.—*H. B. Hersey, Observer, Weather Bureau, Santa Fe, director.*

#### NEW YORK.

**Temperature.**—The mean was 1.3 below the normal; maximum, 68, at Potsdam, 18th; minimum, 9, at Lyon Mountain, 23d, and at Number Four, 24th; greatest monthly range, 58, at Potsdam; least monthly range, 35, at Dunkirk.

**Precipitation.**—The average was 0.90 above the normal; greatest monthly, 9.40, at Brentwood; least monthly, 0.90, at Chenango Forks.

**Wind.**—Prevailing direction, northwest.—*Prof. E. A. Fieries, Dean of the College of Civil Engineering, Cornell University, Ithaca, director; R. M. Hardinge, Observer, Weather Bureau, assistant.*

#### NORTH CAROLINA.

**Temperature.**—The mean was 2.6 below the normal; maximum, 84, at Rockingham, 3d; minimum, 8, at Bakersville, 25th; greatest monthly range, 69, at Washington; least monthly range, 47, at Hatteras.

**Precipitation.**—The average was 0.08 above the normal; greatest monthly, 7.03, at Horse Cove; least monthly, 0.59, at Wilmington.

**Wind.**—Prevailing direction, northwest.—*Dr. Herbert B. Battle, Raleigh, director; C. F. von Herrmann, Observer, Weather Bureau, assistant.*

#### NORTH DAKOTA.

**Temperature.**—The mean was 3.3 below the normal; maximum, 75, at White Earth, 5th; minimum, —26, at Woodbridge, 22d; greatest monthly range, 91, at Woodbridge; least monthly range, 58, at Saint John.

**Precipitation.**—The average was 0.21 above the normal; greatest monthly, 1.80, at Napoleon and Saint John; least monthly, 0.13, at Ashley.

**Wind.**—Prevailing direction, northwest.—*W. H. Fallon, Observer, Weather Bureau, Bismarck, director.*

#### OHIO.

Drought continued over the state.

**Temperature.**—The mean was 3.0 below the normal; maximum, 76, at Marietta, 2d; minimum, 8, at Ohio State University, 11th; greatest monthly range, 63, at Athens; least monthly range, 43, at Harbor.

**Precipitation.**—The average was 0.83 below the normal; greatest monthly, 5.32, at Montpelier; least monthly, 0.83, at Cambridge.

**Wind.**—Prevailing direction, northwest.—*Prof. E. F. Thomas, Columbus, director; C. M. Strong, Observer, Weather Bureau, secretary and assistant.*

#### OKLAHOMA.

**Temperature.**—Maximum, 80, at Purcell, 29th; minimum, 19, at Fort Supply, 20th, and at Gate City, 21st; greatest monthly range, 55, at Purcell; least monthly range, 37, at Ponca.

**Precipitation.**—Greatest monthly, 1.17, at Enfaula; least monthly, 0.00, at Fort Reno.

**Wind.**—Prevailing direction, north.—*J. I. Widmeyer, Observer, Weather Bureau, Oklahoma City, director.*

#### OREGON.

**Temperature.**—The mean was 1.2 above the normal; maximum, 79, at Canyon City, 4th; minimum, 8, at Burns, 12th; greatest monthly range, 61, at Burns; least monthly range, 24, at Astoria.

**Precipitation.**—The average was 3.13 above the normal; greatest monthly, 25.56, at Glenora; least monthly, trace, at Burns.

**Wind.**—Prevailing direction, south.—*Hon. H. E. Hayes, Master State Grange, Portland, director; B. S. Pague, Local Forecast Official, Weather Bureau, assistant.*

#### PENNSYLVANIA.

**Temperature.**—The mean was 0.5 below the normal; maximum, 72, at Pittsburg, 17th; minimum, 10, at Somerset, 23d and 24th; greatest monthly range, 54, at Pittsburg, Hollidaysburg, and Coatesville; least monthly range, 40, at Altoona and Harrisburg.

**Precipitation.**—The average was 0.75 above the normal; greatest monthly, 7.08, at Quakertown; least monthly, 1.61, at Newcastle.

**Wind.**—Prevailing direction, northwest.—*Under direction of the Franklin Institute, Philadelphia; H. L. Ball, Observer, Weather Bureau, assistant.*

#### SOUTH CAROLINA.

**Temperature.**—Maximum, 86, at Trial, 2d; minimum, 14, at Greenville, 25th; greatest monthly range, 68, at Kitchings Mills and Trial; least monthly range, 50, at Saint Matthews.

**Precipitation.**—Greatest monthly, 3.88, at Yorkville; least monthly, 0.60, at Saint Matthews.

**Wind.**—Prevailing direction, southwest.—*A. P. Butler, Observer, Weather Bureau, Columbia, director.*

## SOUTH DAKOTA.

**Temperature.**—The mean was 2.3 below the normal; maximum, 80, at Millbank, 5th; minimum, -20, at Ashcroft, 25th; greatest monthly range, 96, at Ashcroft; least monthly range, 60, at Millbank.

**Precipitation.**—The average was 0.02 above the normal; greatest monthly, 2.34, at Webster; least monthly, trace, at Piedmont.

**Wind.**—Prevailing direction, northwest.—*S. W. Glenn, Local Forecast Official, Weather Bureau, Huron, director.*

## TENNESSEE WEATHER AND CROP SERVICE.

**Temperature.**—The mean was 1.0 below the normal of the last 10 years; maximum, 79, at Riddleton, 13th, and at Sweetwater, 12th and 19th; minimum, 11, at Johnson City, 25th; greatest monthly range, 66, at Riddleton and Sweetwater; least monthly range, 42, at Florence Station.

**Precipitation.**—The average was 1.37 above the normal of the last 10 years; greatest monthly, 7.55, at Covington; least monthly, 2.70, at Bolivar.

**Wind.**—Prevailing direction, north.—*J. B. Marbury, Local Forecast Official, Weather Bureau, Nashville, director.*

## TEXAS.

**Temperature.**—The mean was 1.2 above the normal; maximum, 94, at Fort Ringgold, 3d; minimum, 18, at Fort Hancock, 18th; greatest monthly range, 64, at Fort Ringgold and Weatherford; least monthly range, 36, at Galveston.

**Precipitation.**—The average was 0.15 above the normal; greatest monthly, 7.22, at Huntsville; least monthly, trace, at Childress.

**Wind.**—Prevailing direction, south.—*D. D. Bryan, Galveston, director; I. M. Cline, Local Forecast Official, Weather Bureau, assistant.*

## UTAH.

**Temperature.**—Maximum, 76, at Fillmore, 12th; minimum, -6, at Loa, 24th; greatest monthly range, 67, at Fillmore; least monthly range, 41, at Grouse Creek.

**Precipitation.**—Greatest monthly, 0.72, at Salt Lake City; least monthly, 0.00, at Losee and Green River.—*G. N. Salisbury, Observer, Weather Bureau, Salt Lake City, director.*

## VIRGINIA.

**Temperature.**—Maximum, 79, at Richmond, 8th, and at Salem, 4th; minimum, 10, at Big Stone Gap, 24th, and at Hot Springs and Marion, 25th;

greatest monthly range, 63, at Richmond; least monthly range, 42, at Mossing Ford.

**Precipitation.**—Greatest monthly, 6.15, at Big Stone Gap; least monthly, 1.62, at Falls Church.

**Wind.**—Prevailing direction, northwest.—*Dr. E. A. Craighill, Lynchburg, director; J. N. Ryker, Observer, Weather Bureau, assistant.*

## WASHINGTON.

**Temperature.**—Maximum, 70, at Tacoma and Walla Walla, 8d; minimum, 8, at Waterville, 26th; greatest monthly range, 50, at Rosalia; least monthly range, 21, at Tatoosh Island and Vashon.

**Precipitation.**—Greatest monthly, 20.62, at Neah Bay; least monthly, 0.71, at Moxee.

**Wind.**—Prevailing direction, south.—*H. F. Alciatore, Observer, Weather Bureau, Olympia, director.*

## WEST VIRGINIA.

**Temperature.**—Maximum, 81, at New Cumberland, 17th; minimum, 3, at Buckhannon, 24th; greatest monthly range, 76, at Spencer; least monthly range, 46, at Danville and Romney.

**Precipitation.**—Greatest monthly, 4.94, at Rowlesburg; least monthly, 1.58, at Bluefield.

**Wind.**—Prevailing direction, southwest.—*W. W. Dent, Observer, Weather Bureau, Parkersburg, director.*

## WISCONSIN.

**Temperature.**—The mean was 4.0 below the normal; maximum, 65, at Port Washington, 13th; minimum, -4, at Barron, Butternut, Hillsboro, and Osceola Mills, 24th, at Grantsburg, 23d, and at Rhinelander, 19th; greatest monthly range, 58, at Barron; least monthly range, 30, at Cadiz.

**Precipitation.**—Greatest monthly, 2.93, at Green Bay; least monthly, 0.37, at Shell Lake.

**Wind.**—Prevailing direction, northwest.—*W. L. Moore, Local Forecast Official, Weather Bureau, Milwaukee, director.*

## WYOMING.

**Temperature.**—Maximum, 72, at Fort McKinney, 4th; minimum, -5, at Camp Pilot Butte, 7th; greatest monthly range, 70, at Fort McKinney; least monthly range, 43, at Fort Yellowstone.

**Precipitation.**—Greatest monthly, 1.90, at Fort Yellowstone; least monthly, trace, at Laramie.

**Wind.**—Prevailing direction, southwest.—*E. M. Ravenscraft, Observer, Weather Bureau, Cheyenne, director.*

## CONTRIBUTIONS AND ORIGINAL ARTICLES.

## TORNADO AT EAGLES MERE, PA., JUNE 27, 1892.

The following is the substance of a report by Mr. H. L. Ball, Observer, Weather Bureau, and Assistant Director of the Pennsylvania Weather Service, on a tornado which passed near Eagles Mere, Sullivan Co., Pa., June 27, 1892:

Eagles Mere is a small village situated on the table land of northern Pennsylvania, at an elevation of more than 2,000 feet. It is surrounded by forests and the country is broken by short hills and broad valleys.

June 27th was warm and rainy. About 4.30 p. m. clouds were observed moving rapidly from the northwest and northeast towards the south and southwest, where they presented an exceedingly dark and angry appearance. About 5 p. m. the tornado appeared in the form of an immense funnel-shaped cloud moving from southwest to northeast. It was attended by a loud roaring noise, and everything in a path one-half mile to one mile in width and ten to fifteen miles in length was leveled. In the forest the path was clearly cut; immense trees were uprooted and thrown in all directions, and a whirling motion was plainly shown. Although the path of the storm was two to three hundred yards east of the village a number of houses were within its influence. One house was completely demolished, others were moved, and one house was turned around without being seriously damaged. Water from a lake was carried up in a sheet, and a large stone was hurled into a house. After passing the village the tornado struck the side of a heavily wooded hill about 100 feet in height. Every tree was uprooted, those on the left of the center of the path pointing down, and those on the right pointing up the hill. The path of the tornado was through the forest, except where it struck the edge of Eagles Mere, and no lives were lost.

## THE GALVESTON ISLAND (TEX.) TORNADO, NOVEMBER 6, 1892.

Mr. M. Wright, Assistant Observer, Weather Bureau, temporarily in charge of the station at Galveston, Tex., furnishes an interesting description of a tornado that visited Galveston Island the morning of November 6, 1892:

The tornado first appeared about 11 miles below Galveston, at 5.45 a. m., and traveled in a northeasterly direction about 8 miles. The country over

which the storm passed was level and generally uncultivated. During the passage of the tornado a severe thunder and rain storm prevailed over the island; further notes relative to the conditions which obtained are lacking. The path of the tornado varied from 50 to 125 feet in width; the greatest destructive force was manifested on the south side of the path, and the time required for the storm to pass a given point was estimated at 30 seconds.

The destructive force of the tornado was first felt about 2 miles southwest of what is known as the "9-mile school house." At that point an old building had been crushed downward, apparently by a force exerted from above, the north and east sides of the building being thrown outward and the south and west sides inward. Parts of the roof were thrown in all directions, and a number of boards were carried about 50 feet northeastward; at that place the path of destruction was about 50 feet in width. From the old building to the school house the path was indistinct; in two places, one about 1,500 feet from the old building and the other about 500 feet southwest of the school house, the mesquite brush was twisted and blown to the ground, showing a whirling, right to left movement.

The school house, which was totally destroyed, was set on blocks and was blown from its foundation, the debris being scattered to the northeastward; at this point the width of the path of destruction was about 60 feet.

The storm then moved northeast about 2 miles over a tract of country without encountering houses or trees, the path varying from 50 to 75 feet in width; mesquite brush was leveled, and in some places it was twisted off and carried northeastward some 300 feet. A barn was next unroofed and the roof carried about 120 feet east-northeast; the remainder of the barn was left standing but was badly wrecked. A house which stood 75 feet south and 100 feet east of the barn was moved from its foundation and turned to the northward about 40°. It was calculated that the storm-center passed about 50 feet north of the barn.

The tornado passed thence through an orchard in an easterly direction; some of the trees were blown down and twisted until they were a mass of splinters at the base, none being uprooted or broken entirely off. In the center of the path the trees were thrown east 15° to 20° north, and those on the south side were lying east 30° to 40° north. Trees in the extreme southern part of the orchard were apparently broken by a force exerted downward; branches were broken, and bark was torn from the trees from the branches